What is claimed is:

1. A delay circuit comprising

a first network having an input and an output node;

a second network having an input and an output,

the input of the second network being coupled to the output node of the first network;

the first network and the second network being configured such that:

a glitch at the input to the first network having a length of approximately one-half of a standard glitch time or less does not cause the voltage at the output of the second network to cross a threshold;

a glitch at the input to the first network having a length of between approximately one-half and two standard glitch times causes the voltage at the output of the second network to cross the threshold for less than the length of the glitch; and

a glitch at the input to the first network having a length of greater than approximately two standard glitch times causes the voltage at the output of the second network to cross the threshold for approximately the time of the glitch.

2. The delay circuit of claim 1 wherein

the first network comprises a P-type FET and an N-type FET, the gates of the two FETs being coupled together and the drains of the two FETs being coupled together, the source of the P-type FET being coupled to the power source and the source of the N-type FET being coupled to ground.

3. The delay circuit of claim 2 wherein the channel of at least one of the FETs is non-linear.

4. The delay circuit of claim 3 wherein the channel of the at least one of the FETs includes a jog.

5. The delay circuit of claim 1 wherein
the jog is a right angle.

6. The delay circuit of claim 1 wherein
the second network is an inverter.

7. The delay circuit of claim 1 wherein
the voltage at the output of the second network crosses the threshold after a delay relative to the arrival of the glitch at the input to the first network, the delay being determined by characteristics of the first network and characteristics of the second network.

8. An SEU-resistant circuit comprising
a gate having an input and an output;
a feedback path from the output of the gate to the input of the gate, the feedback path comprising two or more delay elements; and
the gate and the two or more delay elements being configured to absorb a standard glitch at the input to the gate before it propagates through the feedback path to the input of the gate, the delay being spread among the gate and the two or more delay elements.

9. The SEU-resistant circuit of claim 8 wherein the delay is substantially evenly spread among the gate and the two or more delay elements.

10. The SEU-resistant circuit of claim 8 wherein the delay elements comprise balanced gates.

11. The SEU-resistant circuit of claim 8 wherein
the feedback path further comprises a driver gate.

12. The SEU-resistant circuit of claim 8 wherein
the delay elements comprise inverters.

13. The SEU-resistant circuit of claim 8 wherein
the number of delay elements is even.

14. An SEU-resistant circuit having a first state and a second state, the SEU-resistant circuit comprising
a first flip-flop having a first state and a second state, the first flip-flop configured to change state upon application of a signal to a first flip-flop signal input;
a second flip-flop having a first state and a second state equivalent to the first state and the second state of the first flip-flop, the second flip-flop configured to change state upon application of a signal to a second flip-flop signal input;
the first flip-flop being coupled to the second flip-flop such that the SEU-resistant circuit does not change from its first state to its second state unless the state of the first flip-flop agrees with the state of the second flip-flop;
an input to receive a signal to cause the SEU-resistant circuit to change states when the signal changes states;
the input coupled to the first flip-flop signal input;
the input coupled to the second flip-flop signal input through a delay circuit; and
the input is for one of a clock, reset or preset signal.

15. The SEU-resistant circuit of claim 14, wherein
the delay circuit is non-inverting.

16. The SEU-resistant circuit of claim 14, wherein
the delay circuit has a delay greater than the maximum expected glitch time.

17. A transition NAND gate comprising
two or more input nodes;
an output node;
a state machine responsive to the two or more input nodes;
the state machine being in a current state when signals applied to the respective input nodes have specified values;
the state machine being capable of transitioning from a most recent current state to a state that is not a current state;
the output node storing the current state of the state machine.

18. The transition NAND gate of claim 17 wherein
the output node has parasitic capacitance and the output node stores the current state in its parasitic capacitance.

19. The transition NAND gate of claim 17 wherein the state machine comprises:
a supply-side FET for each input terminal,
the gate of each supply-side FET being connected to a respective input terminal,
the supply-side FETs being connected in series,
the series-connected supply-side FETs having a supply end and an output end;
a ground-side FET for each input terminal,
the gate of each ground-side FET being connected to a respective input terminal,
the ground-side FETs being connected in series,
the series-connected ground-side FETs having a ground end and an output end;
the output end of the series-connected supply-side FETs being connected to the output end of the series connected ground-side FETs to form an output terminal.

20. The transition NAND gate of claim 19 wherein
the supply-side FETs are P-type FETs; and
the ground-side FETs are N-type FETs.

21. The transition NAND gate of claim 17 wherein
the state machine is in a first current state when signals connected to the input nodes are all high; and
the state machine is in a second current state when signals connected to the input nodes are all low.

22. An SEU-resistant flip-flop comprising

a Data input;

a GB input;

a network responsive to signals applied to the Data input and the GB input;

the network having a Q1 output which has the value of the signal applied to the Data input when the signal applied to the GB input is low;

the network having a Q2 output which has the value of the signal applied to the Data input D seconds after the signal applied to the GB input is low;

the Q1 output of the network being coupled to a Q1 node;

the Q2 output of the network being coupled to a Q2 node;

a two-input one-output TAG, the output of the TAG being configured to change state only if the value of the signal on its first input is the same as the value of the signal on its second input;

the first input of the TAG being coupled to the Q1 node;

the second input of the TAG being coupled to the Q2 node;

the output of the TAG being coupled to a QB node;

a first slow inverter having its input coupled to the QB node and its output coupled to the Q1 node; and

a second slow inverter having its input coupled to the QB node and its output coupled to the Q1 node.

23. The SEU-resistant flip-flop of claim 22 further comprising

a transmission gate, gated by the value of the signal in the GB node, in a signal path between the first slow inverter and the Q1 node; and

a transmission gate, gated by the value of the signal on the GB node, in a signal path between the second slow inverter and the Q2 node.

24. The SEU-resistant flip-flop of claim 22 further comprising

an inverter coupled to the QB node.

25. The SEU-resistant flip-flop of claim 22 wherein the TAG comprises
two series-connected P-type FETs, the gate of a first P-type FET coupled to the Q1 node, the gate of a second P-type FET coupled to the Q2 node, the series-connected P-type FETs having a supply end and a connection end;
two series-connected N-type FETs, the gate of a first N-type FET coupled to the Q1 node, the gate of a second N-type FET coupled to the Q2 node, the series-connected N-type FETs having a ground end and a connection end; and
the connection end of the series-connected N-type FETs being coupled to the connection end of the series-connected P-type FETs and to the QB node.

26. The SEU-resistant flip-flop of claim 25 wherein
the P-type FET coupled to the Q2 node is at the connection end of the series-connected P-type FETs; and
the N-type FET coupled to the Q2 node is at the connection end of the series-connected N-type FETs.

27. The SEU-resistant flip-flop of claim 22 wherein the network comprises
a first inverter having its input coupled to the GB input, the output of the first inverter being coupled to a G node;
a delay G having its input coupled to the G node, the output of the delay G being coupled to a G2 node;
an inverter having its input coupled to the G2 node and its output coupled to a GB2 node;
a first transmission gate coupled between the Data input and the Q1 node and gated by the signals on the GB and G nodes; and
a second transmission gate coupled between the Data input and the Q2 node and gated by the signals on the GB2 and G2 nodes.

28. The SEU-resistant flip-flop of claim 27 wherein the delay G comprises a first delay coupled in series with a second delay.

29. The SEU-resistant flip-flop of claim 27 further comprising a buffer coupled between the Data input and the first and second transmission gates.

30. A method for reducing the vulnerability of a latch to single event upsets, the latch comprising a gate having an input and an output and a feedback path from the output to the input of the gate, the method comprising inserting a delay into the feedback path; and providing a delay in the gate.

31. The method of claim 30 wherein the gate comprises a first FET having a channel and a second FET having a channel, the channel of the first FET and the channel of the second FET coupled at a node having a parasitic capacitance, wherein providing comprises adjusting the characteristics of the channel of the first FET, the characteristics of the channel of the second FET and the parasitic capacitance of the node.

32. The method of claim 31 wherein adjusting comprises increasing the length of the channel of the first FET.

33. The method of claim 32 wherein increasing comprises making the channel non-linear.

34. The method of claim 33 wherein making comprises inserting a jog into the channel.

35. The method of claim 34 wherein the jog is a right angle.

36. The method of claim 31 further comprising

coupling the output of the gate to a threshold device having an input, an output and a threshold, the output having a first value when the input is less than the threshold and a second value when the input is greater than the threshold.

37. The method of claim 31 further comprising

adjusting the time constant and the threshold so that

a glitch of length L1 at the input to the gate would not effect the output of the threshold device;

a glitch of length L2, $L1 < L2 < L3$, would cause a pulse of length $L4 < L2$ to appear at the output of the threshold device after a delay determined by the time constant and the threshold; and

a glitch of length $L5 > L3$ would cause a pulse of length approximately L5 to appear at the output of the threshold device after a delay determined by the time constant and the threshold.